

REMARKS/ARGUMENTS

I. Rejection of Claims Under 35 USC §102

The Office maintained the rejection of claims 1-2, and 4-10 as being anticipated under 35 USC §102(b) by US4849091 to Cabrera et al. The applicant once more respectfully disagrees, especially in view of the amendments herein.

As amended, claim 1 expressly requires a "...reactor vessel having a first section with a first width, wherein an outwardly tapered transition portion is coupled to the first section to so increase the first width, and wherein the tapered transition portion is coupled to a second section having a second width...". Moreover, amended claim 1 also expressly requires that "... the first and second widths are configured to allow substantially complete conversion of carbon from the carbon-contaminated catalyst to carbon dioxide in the first section..." These elements are neither taught nor suggested by Cabrera.

Anticipation under Section 102 requires "the presence in a single prior art disclosure of all elements of a claimed invention ***arranged as in that claim.***" *Panduit Corp. v. Dennison Manufacturing Co.*, 774 F.2d 1082, 1101, 227 U.S.P.Q. (BNA) 337, 350 (Fed. Cir. 1985) (quoting *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548, 220 U.S.P.Q. (BNA) 193, 198 (Fed. Cir. 1983)). ALSO: The requirement that the prior art elements themselves be "arranged as in the claim" means that ***claims cannot be "treated . . . as mere catalogs of separate parts***, in disregard of the part-to-part relationships set forth in the claims and that give the claims their meaning." *Quoting Lindemann Maschinenfabrik GMBH v. Am. Hoist & Derrick Co.*, 730 F.2d 1452, 1459 (Fed. Cir. 1990)

It is noted that the examiner yet again argued that the tapered transition portion between the first and second sections would be the transitional portion between space 7 and 8 of Figure 1 in Cabrera. Such identification is inconsistent with the examiner's own reasoning as the examiner noted that the first section would be items 7 and 8 in Figure 1 of Cabrera, but at the same time identified disengagement space 11 as the second section. Moreover, the transition portion must be outwardly tapered, which is also clearly not the case in Cabrera. Lastly, as should be readily apparent from Cabrera (see *e.g.*, Figure 1), a substantial portion of catalyst is regenerated in the dense bed regeneration zone 12. All of these defects also apply to the dependent claims 2, and 4-

10. For at least these reasons, the rejection of claims 1-2, and 4-10 as being anticipated under 35 USC §102(b) by US4849091 to Cabrera et al. should be withdrawn.

II. Rejection of Claims Under 35 USC §103

(1) The Office rejected claims 13, and 15-19 as being obvious under 35 USC §103 over US4849091 to Cabrera et al. in view of US4375404 to Myers. The applicant again respectfully disagrees, especially in view of the amendments herein.

As amended, claim 13 and 15-19 all require a "...reactor vessel having a first section with a first width, wherein an outwardly tapered transition portion is coupled to the first section to so increase the first width, and wherein the tapered transition portion is coupled to a second section having a second width...". Even more significantly, amended claim 13 also expressly requires "...to co-currently regenerate substantially all of the catalyst in the first section ...". These elements are neither taught nor suggested by Cabrera.

First, as already noted above, the cited reference fails to teach the elements as presently claimed. Second, as a consequence of Cabrera's device and regeneration process, a substantial portion of the catalyst is retained in the dense bed regeneration zone 12 (arguably corresponding to the second zone). In contrast, substantially all of the catalyst must be regenerated in the first section as required by the claims. Such differences are irreconcilable. For example, Cabrera requires the heat from the regeneration reaction in the dense bed zone for the reaction in the first section. Still further, Cabrera's configuration also clearly teaches against the examiner's position that Cabrera's device would be operable as presently claimed as not sufficient heat would be available in the first section, which prevents substantially complete regeneration in the first section.

Regarding Myers, it is yet again entirely unclear to the applicant what the office intends to express. The office noted that one of ordinary skill in the art "...would have been motivated to add chlorine to the regenerator to raise the ratio of CO to CO₂...". First, it is noted that the present claims, and indeed the entire application is devoid of any reference to addition of chlorine. Second, it should be noted that the claimed subject matter is drawn to the specific

device configuration to so achieve a separation of the exothermic reaction ($\text{CO} \rightarrow \text{CO}_2$) from the $\text{C} \rightarrow \text{CO}$ conversion. Thus, Myers is not only irrelevant as applicant does not use chlorine, but also teaches away from the claimed subject matter. Third, Myers fails to remedy the defects pointed out above for Cabrera.

Therefore, the rejection of claims 13, and 15-19 as being obvious under 35 USC §103 over US4849091 to Cabrera et al. in view of US4375404 to Myers is improper and should be withdrawn.

(2) The Office rejected claims 3 and 12 as being obvious under 35 USC §103 over Cabrera et al. in view of US 4991521 to Green and US 4313848 to Scott . The applicant again respectfully disagrees.

With respect to claim 3 it is noted that since claim 3 depends on amended claim 1, the same considerations and defects with regard to Cabrera as detailed above for claim 1 apply and are not reiterated here.

Green and Scott fail to remedy these defects. Indeed, it should be noted that Cabrera teaches against any modification as discussed by Green and Scott. Green employs a continuous regeneration sequence in which a two-stage fluidized bed is operated for catalyst regeneration. Clearly, the dimensional parameters are of importance. Moreover, it should be appreciated that Green 's device (as Cabrera) uses catalyst regeneration in two zones. In contrast, the catalyst regeneration of the claims is substantially complete in the first section. On a finer note, it should be appreciated that Cabrera's device separates regeneration zones and as such renders the dimensions of one zone independent from the other. Clearly, the combination of the teachings would result in an inoperative device.

Scott employs a regenerator where two entirely different contaminants, nitrogen-containing contaminants and carbon-containing contaminants, are removed from the catalysts in two separate zones. As the different contaminants have different reaction kinetics, it is imperative to control those zones. However, such design considerations are immaterial to Cabrera as that reference only deals with carbon-contaminants. Consequently, no motivation or

suggestion can be found as alleged by the office. Therefore, the rejection of claim 3 is improper and should be withdrawn.

Similarly, with respect to claim 12 it is noted that Cabrera fails to properly apply for reasons discussed in the rejection of claims 1-2, and 4-10 above. Green and Scott once more fail to remedy these defects. Moreover, and yet again, it is noted that there is absolutely nothing in green and Scott that would provide motivation to modify Cabrera as noted by the office. The discussions in Green and Scott are directly related to their respective design and chemistry and bear no relevance to Cabrera. Therefore, the rejection of claim 12 is improper and should be withdrawn.

(3) The Office rejected claim 11 as being obvious under 35 USC §103 over Cabrera et al. as applied to claims 1 and 13 in view of US 4313848 to Scott . The applicant again respectfully disagrees. Once more, it is noted that Cabrera is defective for reasons as discussed above in the rejection of claims 1-2, and 4-10. Again Scott fails to remedy these defects as discussed immediately above. Therefore, the rejection of claim 11 is improper and should be withdrawn.

(4) The Office rejected claim 14 as being obvious under 35 USC §103 over Cabrera et al. in view of Myers, Green, and Scott. The applicant once again respectfully disagrees. Again, it is pointed out that Cabrera is defective for reasons as discussed above in the rejection of claims 1-2, and 4-10. Myers, Green, Scott fail to remedy these defects as discussed above. Therefore, the rejection of claim 14 is improper and should be withdrawn.

(5) The Office rejected claim 20 as being obvious under 35 USC §103 over Cabrera et al. in view of Myers, and Scott. The applicant yet again respectfully disagrees and points out that Cabrera is defective for reasons as discussed above in the rejection of claims 1-2, and 4-10. Myers, and Scott fail to remedy these defects as also discussed above. Therefore, the rejection of claim 20 is improper and should be withdrawn.

Request For Allowance

Claims 1-20 are pending in this application. The applicant requests allowance of all pending claims.

Respectfully submitted,
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